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 Kalyanaraman Vaidyanathan, Richard E. Harper, Steven W. Hunter, Kishor S. Trivedi
 June 2001 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 2001 ACM SIGMETRICS international conference on Measurement and modeling of computer systems**, Volume 29 Issue 1

Full text available: [pdf\(983.05 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Several recent studies have reported the phenomenon of "software aging", one in which the state of a software system degrades with time. This may eventually lead to performance degradation of the software or crash/hang failure or both. "Software rejuvenation" is a pro-active technique aimed to prevent unexpected or unplanned outages due to aging. The basic idea is to stop the running software, clean its internal state and restart it. In this paper, we discuss software rejuvenation as applied to ...

- 2 [Experience with performing architecture tradeoff analysis](#)
 Rick Kazman, Mario Barbacci, Mark Klein, S. Jeromy Carrière, Steven G. Woods
 May 1999 **Proceedings of the 21st international conference on Software engineering**

Full text available: [pdf\(1.33 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**Keywords:** architectural styles, architecture analysis, quality attribute models

- 3 [An approach to the total design of instructional systems by simulation](#)
 Abimbola Salako
 August 1972 **Proceedings of the ACM annual conference - Volume 2**

Full text available: [pdf\(948.23 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The problem of designing integrated hardware, software, and application systems using simulation as the main design tool is investigated. A proposed design methodology incorporating an iterative loop is then employed to the design of a system for Computer Assisted Instruction. Models of the hardware, the operating system, and the application system are developed, integrated, and simulated to generate a hardware configuration for a 20-terminal system. The performance of

this system under ope ...

Keywords: Applications, Computer assisted instruction, Instructional systems, Integrated hardware/software design, Modeling, Operating systems, Simulation, System performance, Systems design

4 Software reliability and dependability: a roadmap

Bev Littlewood, Lorenzo Strigini

May 2000 **Proceedings of the Conference on The Future of Software Engineering**

Full text available:  [pdf\(1.57 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: COTS reliability, dependability modelling and assessment, diversity, reliability engineering

5 Workshop on integrated approach for fault tolerance-current state and future requirements

Pankaj Jalote, Satish K. Tripathi


January 1990 **ACM SIGOPS Operating Systems Review**, Volume 24 Issue 1

Full text available:  [pdf\(1.31 MB\)](#) Additional Information: [full citation](#), [citations](#), [index terms](#)

6 Survey of software tools for evaluating reliability, availability, and serviceability

Allen M. Johnson, Miroslaw Malek

September 1988 **ACM Computing Surveys (CSUR)**, Volume 20 Issue 4

Full text available:  [pdf\(3.79 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In computer design, it is essential to know the effectiveness of different design options in improving performance and dependability. Various software tools have been created to evaluate these parameters, applying both analytic and simulation techniques, and this paper reviews those related primarily to reliability, availability, and serviceability. The purpose, type of models used, type of systems modeled, inputs, and outputs are given for each package. Examples of some of the key modeling ...

7 High-bandwidth networks: Analytic methods in coverage testing of communications software

Jadranka Alilovic-Curgus

November 1992 **Proceedings of the 1992 conference of the Centre for Advanced Studies on Collaborative research - Volume 2**

Full text available:  [pdf\(795.97 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Efficient test selection and evaluation algorithms are important in practical situations during the system verification phase, especially when the software involved is complex and manual and semi-automated methods of system verification can require weeks. To help automate this process, a simple procedure using a stratified selection approach for the control space of system behaviour is presented. This new method introduces a rigorous mathematical treatment of the discipline of testing, through t ...

Keywords: communication protocols testing, computer communications, formal methods, metric models, quality assurance, reliability, software engineering

methods

8 Operational models for the evaluation of degradable computing systems

L. T. Wu

August 1982 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 1982 ACM SIGMETRICS conference on Measurement and modeling of computer systems**, Volume 12 Issue 3Full text available:  [pdf\(579.51 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Recent advances in multiprocessor technology have established the need for unified methods to evaluate computing systems performance and reliability. In response to this modeling need, this paper considers a general modeling framework which permits the modeling, analysis and evaluation of degradable computing systems. Within this framework, a simple and useful user-oriented performance variable is identified and shown to be a proper generalization of the traditional notions of system performance ...

9 On interprocess interaction in distributed architectures

Nenad Marovac

September 1983 **ACM SIGARCH Computer Architecture News**, Volume 11 Issue 4Full text available:  [pdf\(529.53 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Computational concurrency has been with us for some time and is here to stay, particularly in the domain of distributed systems and fault-tolerant computers. Processes executing concurrently in such systems communicate in order to exchange information and to synchronize the activities they perform. Classical interprocess synchronization mechanisms, based on shared variables and semaphores, are neither efficient nor methodically sound; nor do they produce correct solutions when dealing with autonomous ...

10 Specification, Safety and Reliability Analysis Using Stochastic Petri Net Models


Frederick T. Sheldon, Stefan Grenier, Matthias Benzinger

November 2000 **Proceedings of the 10th International Workshop on Software Specification and Design**Full text available:  [pdf\(381.71 KB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#) [Publisher Site](#)

In this study, we focus on the specification and assessment of Stochastic Petri net (SPN) models to evaluate the design of an embedded system for reliability and availability. The system provides dynamic driving regulation (DDR) to improve vehicle drivability (anti-skid, -slip and steering assist). A functional SPN abstraction was developed for each of three subsystems that incorporate mechanics, failure modes/effects and model parameters. The models are solved in terms of the subsystem and over ...

11 Dynamic network reconfiguration support for mobile computers

Jon Inouye, Jim Binkley, Jonathan Walpole

September 1997 **Proceedings of the 3rd annual ACM/IEEE international conference on Mobile computing and networking**Full text available:  [pdf\(1.60 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

12 Research sessions: potpourri: Workflow management with service quality guarantees

Michael Gillmann, Gerhard Weikum, Wolfgang Wonner

June 2002 **Proceedings of the 2002 ACM SIGMOD international conference on Management of data**


Full text available:  [pdf\(1.29 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Workflow management systems (WFMS) that are geared for the orchestration of business processes across multiple organizations are complex distributed systems: they consist of multiple workflow engines, application servers, and communication middleware servers such as ORBs, where each of these server types can be replicated on multiple computers for scalability and availability. Finding an appropriate system configuration with guaranteed application-specific quality of service in terms of throughpu ...

13 Overlay & peer-to-peer networks: Measurement, modeling, and analysis of a peer-to-peer file-sharing workload

Krishna P. Gummadi, Richard J. Dunn, Stefan Saroiu, Steven D. Gribble, Henry M. Levy, John Zahorjan

October 2003 **Proceedings of the nineteenth ACM symposium on Operating systems principles**

Full text available:  [pdf\(751.77 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


Peer-to-peer (P2P) file sharing accounts for an astonishing volume of current Internet traffic. This paper probes deeply into modern P2P file sharing systems and the forces that drive them. By doing so, we seek to increase our understanding of P2P file sharing workloads and their implications for future multimedia workloads. Our research uses a three-tiered approach. First, we analyze a 200-day trace of over 20 terabytes of Kazaa P2P traffic collected at the University of Washington. Second, we ...

Keywords: Zipf's law, measurement, modeling, multimedia workloads, peer-to-peer

14 The effect of failure and repair distributions on consistency protocols for replicated data objects

John L. Carroll, Darrell D. E. Long

March 1989 **Proceedings of the 22nd annual symposium on Simulation**


Full text available:  [pdf\(1.26 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The accessibility of vital information can be enhanced by replicating the data on several sites, and employing a consistency control protocol to manage the copies. Various protocols have been proposed to ensure that only current copies of the data can be accessed. The effect these protocols have on the accessibility of the replicated data is investigated by simulating the operation of the network and measuring the performance. Several strategies for replica maintenance are consid ...

15 Military applications: Logistics 1: closed-loop, simulation-based, systems engineering approach to life cycle management of defense systems

Sean Connors, Julie Gauldin, Marshall Smith


December 2002 **Proceedings of the 34th conference on Winter simulation: exploring new frontiers**

Full text available:  [pdf\(268.18 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Assessing the life-cycle impacts of operations and maintenance decisions made for new or aging systems requires an accurate ability to measure and respond to uncertainty. Maintenance and parts requirements forecasts for fielded military systems are traditionally performed through historical repair and supply demand models. These models work well once several years of steady state weapon system operation has been accomplished, but tend to depend on a stable and somewhat regular operations and ...

16 The Porcupine scalable mail server

Yasushi Saito, Eric Hoffman, Brian Bershad, Henry Levy, David Becker, Bertil Folliot
September 1998 **Proceedings of the 8th ACM SIGOPS European workshop on
Support for composing distributed applications**

Full text available:  pdf(502.27 KB) Additional Information: [full citation](#), [index terms](#)

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IEE CNF IEE Conference Proceeding

IEEE STD IEEE Standard

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